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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,829	08/25/2006	Mahn-Joo Kim	2934760195	7314
4743 7590 02/28/2007 MARSHALL, GERSTEIN & BORUN LLP 233 S. WACKER DRIVE, SUITE 6300 SEARS TOWER CHICAGO, IL 60606			EXAMINER CHO, JENNIFER Y	
			ART UNIT	PAPER NUMBER
			1621	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/28/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/565,829	<b>Applicant(s)</b> KIM ET AL.	
	<b>Examiner</b> Jennifer Y. Cho	<b>Art Unit</b> 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 8/25/2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/24/2006</u> . | 6) <input type="checkbox"/> Other: _____  |

### **Detailed Action**

1 This office action is in response to Applicant's communication filed on 8/25/2006.

Claims 1-21 are pending in this application.

Upon reconsideration, the restriction requirement is hereby withdrawn. The application is examined in its entirety.

### **IDS**

2 The information disclosure statement (IDS) was filed on 8/24/2006. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### **Claim Rejections – 35 USC 112**

3 The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being confusing, because of the reference to "hydrogen" as an acyl donor. Clarification is requested.

### **Claim Rejections – 35 USC 102**

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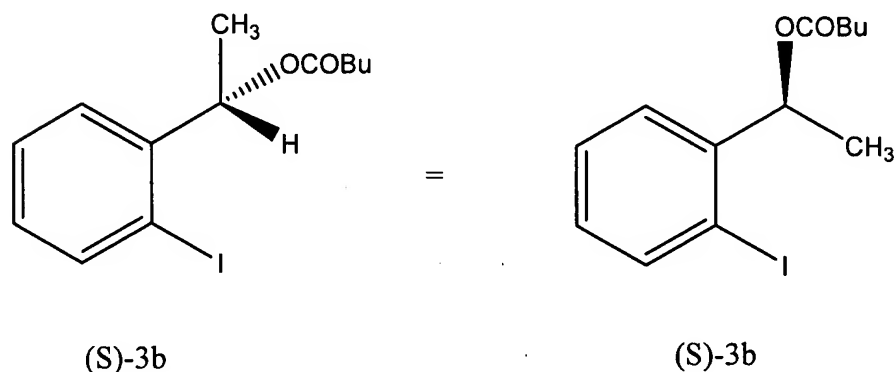
4 The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5 Claim 20 is rejected under 35 U.S.C. 102b as being anticipated by Izumi et al. (J. Chem. Tech. Biotechnol., 1996, 67, 89-95).

Izumi et al. teaches an (S)-chiral ester in which R1 is an iodinated phenyl substituent (substituted C5-C18 aryl), R2 is a methyl substituent (unsubstituted C1-C15 alkyl) and R3 is a butyl substituent (unsubstituted C1-C15 alkyl).



Therefore these claims are fully met.

### Claim Rejections – 35 USC 103

6 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

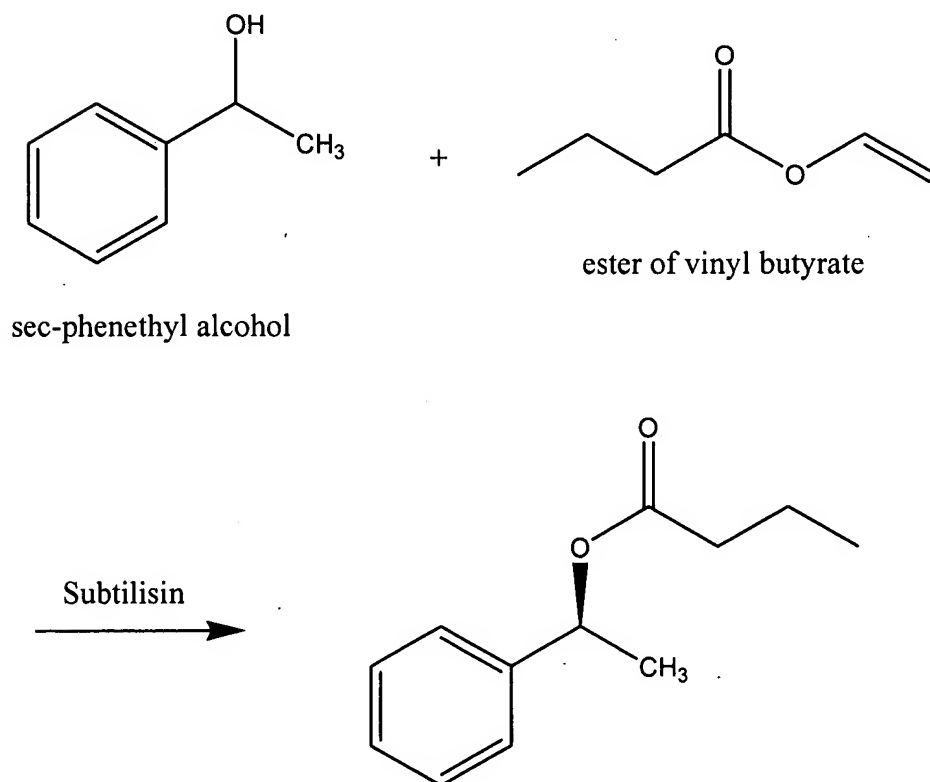
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fitzpatrick et al. (J. Am. Chem. Soc., 1991, 113, 3166-3171), in view of Kim et al. (Current Opinion in Biotechnology, 2002, 13, 578-587).

7 Fitzpatrick et al. teaches the preferential formation of the (S)-chiral ester from the transesterification reaction between sec-phenethyl alcohol and the activated ester vinyl butyrate, catalyzed by subtilisin in dioxane at 45°C (page 3167, second column, midway down, two paragraphs and reaction after Table 1)



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8 Fitzpatrick et al. is deficient in that there is no racemization ruthenium metal catalyst and no hydrogen donor to reduce the corresponding ketone, as the starting material, instead of the alcohol.

9 Kim et al. teaches ruthenium racemization metal catalysts (page 578, figure 2) for the dynamic kinetic resolution of secondary alcohols, using an enzyme, from the asymmetric reductive acylation of ketones, after reacting with a hydrogen donor (page 585, figure 13).

10 In reference to claims 10 and 11, the Examiner interprets the limitation that the acyl donor is linked to the R1 or R2 group, as being linked through the chiral carbon center.

11 In reference to the limitation that the (S)-chiral ester should be hydrolyzed to the (S)-chiral alcohol, it is the position of the Examiner that hydrolysis of esters to alcohols is well known in the art and are conventional reactions.

12 Therefore, it would be prima facie obvious to one of ordinary skill in the art at the time of the invention, to use the ruthenium racemization metal catalyst of Kim et al. and to reduce the ketone, with a hydrogen donor, to get the corresponding alcohol as the starting material, as shown in Kim et al., for the transesterification reaction of Fitzpatrick et al. The expected result would be the efficient formation of an (S)-chiral alcohol from the racemic alcohol or corresponding ketone, in high yield.

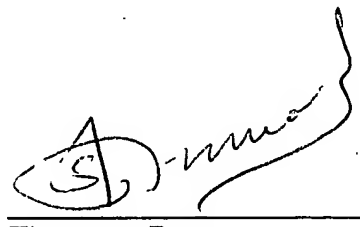
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Y. Cho whose telephone number is (571) 272 6246. The examiner can normally be reached on 9 AM - 6 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman Page can be reached on (571) 272 0602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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